

MASS. HS 110.2: H34/2



Health Care Quality and the Importance of Outcomes Measurement

December 1993

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*A Report of the
Massachusetts Rate Setting Commission
to the Joint Committee on Health Care*

Massachusetts Rate Setting Commission

William F. Weld, Governor
Commonwealth of Massachusetts



Charles D. Baker, Secretary
Executive Office of Health & Human Services



Executive Summary

THE SEARCH for quality standards in health care is intensifying. Rising costs have created the need for greater fiscal responsibility among purchasers of health care, but there is concern that reduced quality will be the price exacted for increased efficiency. Significant differences in the cost of care, clinical approaches and medical outcomes become more apparent as we seek to evaluate the caliber of the health care we receive and provide. Indeed, quality measurement and improvement will determine which providers will thrive in the future.

Medical research, technological advances and state-of-the-art facilities give Massachusetts its reputation for being at the forefront of health care. An increasing proportion of resources in the state is being spent on health care, but it is not certain whether the quality of care delivered to patients is improved.

The costs associated with poor quality can be staggering. Inappropriate care, increased readmissions, longer hospital stays, and higher morbidity and mortality rates are just a few of the consequences of inadequate care. Focusing on quality of care to reduce these costly inefficiencies will go a long way towards helping Massachusetts address spiraling health care costs.

In other states and at the federal level, outcomes measurement is being used to provide the comparative health care data necessary to evaluate both cost and quality.

Outcomes measurement looks at what happens to a patient, group, or community as a result of the care that was received; it involves analyzing how that care affects a patient's health status, encompassing physiological, psychosocial, and functional elements. Through outcomes measurement, benchmarks can be established against which providers can measure, monitor, and improve performance. Likewise, consumers and other purchasers will have the information they need to make informed health care choices. The desired result is a more effective, efficient, affordable, and accessible system of care.

In Massachusetts, as in other states, information on health care costs and outcomes is critical to evaluate the current system and to make appropriate improvements. The Massachusetts Rate Setting Commission will lead a collaborative effort among health care providers, purchasers and consumers to reach a consensus on how to measure outcomes in a sound, scientifically valid and medically meaningful way and to ensure that the necessary information is collected and made available to the public. The Commission's statutory authority and its well-established capacity to collect and maintain an extensive state-wide health care database can form the foundation for outcomes information.

In a time of challenge and change, government, providers, purchasers, insurers, and consumers can greatly benefit from collaboration and a shared commitment to quality. Success depends on teamwork. The Commission's professional commitment and relationships with health care providers, practitioners, and health insurers can create a lasting partnership, working toward the common goal of cost-effective, quality health care for the citizens of Massachusetts.



Health Care Quality and the Importance of Outcomes Measurement

December 1993

Paula R. Griswold, Chairman
Louis I. Freedman, Commissioner



THE HISTORY OF THE
CITY OF BOSTON
FROM THE FIRST SETTLEMENT
TO THE PRESENT TIME

BY
JOHN H. COLEMAN

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Preface: A Word About the Rate Setting Commission

THE MASSACHUSETTS Rate Setting Commission is rich with information resources. Since 1968, it has served as a repository of financial data, annual reports, public testimony, health care rates, and other information pertinent to the delivery and payment of health care.

Over the years, this information was collected and analyzed mostly for the purpose of setting rates for government payers. However today, as public and private sector alike struggle with the cost and availability of health care, the need for information is much broader, particularly where such knowledge can play a direct and useful role in the decision-making of those who insure, purchase, deliver and consume health care services.

This report represents the continuation of an ongoing process—implementing the Commission's expanded mission to provide information, analytical tools, and data to a new and diverse audience.

The Traditional Role of the Rate Setting Commission

The expressed mission of the agency is quite straightforward: to promote for the citizens of the Commonwealth cost effective systems for delivering high quality, accessible health

care. Historically, the Commission fulfilled this mission primarily as a regulatory entity, gaining experience on matters of health care and carrying out various duties which continue to play an important role in the agency's day-to-day operation.

By statute, the Commission's oversight responsibilities currently include establishing rates of payment for health services purchased by the Commonwealth, Medicaid rates for long-term care, overseeing the acute care hospital reimbursement system, and regulating non-acute care hospital charges and workers' compensation rates.

As a fundamental component of these tasks, the Commission gathers, analyzes—and otherwise makes available through its extensive public records—information and data collected for rate-setting purposes. Complementing these regulatory obligations, the Commission also has established a comprehensive health care information program for policy-makers, providers, and purchasers of health care in Massachusetts.

A New Policy Mandate for Health Care Information

Building on the Commission's past, the executive and legislative branches of state government expanded the agency's mandate to serve much broader issues of health policy. Two events set the agency on this course.

Collecting Data

Initially, a section of the Massachusetts State Budget charged the Commission with collecting data for the purpose of identifying "statewide and regional trends in the cost, availability and utilization" of health care.



This legislation codified the authority of the Rate Setting Commission to collect statistical data and other useful information for uses beyond the purpose of setting rates. The intent of the law is for the Commission to capture in its ongoing information studies a wide variety of health care services, provided in a broad array of health care settings.

Health Care Financing Act

The state's Health Care Financing Act, widely known as Chapter 495, also helped redefine the expanded information role of the Commission.

This Act altered the rules of reimbursement for acute care hospitals and explicitly instructed the Commission to support and evaluate the effectiveness of these rules.

In place since January 1992, Chapter 495 illustrates the state's commitment to competi-

tion in health care, in this case, as one means of efficiently determining the amount that acute care hospitals are paid. For the purpose of setting prices and allocating resources, Chapter 495 emphasizes a reliance on the marketplace.

However, in order for this or any market to function properly, purchasers and users of health care must have accurate information on the full range of prices, quality, supply and availability of alternatives.

Similarly, providers of health care are in need of information to develop strategies to improve the effectiveness of the health care services they deliver. And to be cost efficient, those same providers need relevant information on the productivity and efficiency of their business operations.

Information is critical, for competition alone will not stop the upward spiral of prices.

The Commission at a Glance

The Massachusetts Rate Setting Commission is an administrative agency within the Executive Office of Health and Human Services (EOHHS). The agency is responsible for each of the following activities:

Health Care Information

- ◆ the analysis and publication of health cost and utilization information for use by lawmakers, state officials, providers, insurers, consumers and other interested parties in the formulation of public policy and the provision and purchase of health care services.

Rate-Setting & Oversight

- ◆ establishing rates of payment for health care and long-term care services purchased by the Commonwealth of Massachusetts,
- ◆ oversight of the acute care hospital payment system,
- ◆ non-acute care hospital charge regulation, and
- ◆ workers compensation rates.



Chapter 495 encourages competition among hospitals. However, the effectiveness of the policy shift toward competition depends at least in part upon the availability of applicable information—information that the Commission is working to provide.

The Information Program

This publication is one of a series of reports which the Commission will publish as part of its relatively new health care information program. These reports primarily will be aimed at users of information and will address numerous subject areas. Some of the agency's reports will be updated on a regular basis.

This report focuses on the issue of quality and the importance of outcomes measurement as a means to promote an improved, cost-effective, and accessible system of health care for the Commonwealth. Other areas of study presently include, for example, the acute care hospital sector, other provider types, other health care delivery sites and health insurance trends in Massachusetts.

Health Care Costs in Massachusetts

One of the Commission's primary objectives is to identify the forces that are driving costs upward and to assist in the development of strategies to reduce them. Toward this end, in December 1992, the Commission published Health Care Costs in Massachusetts, one of several reports currently available from the Commission.

This extensive report presents a formal review of trends in health care spending, acute hospital unit costs, and the utilization of inpatient hospital services in Massachusetts. Initially, established data collection procedures more readily permitted the analysis of inpatient services. Insofar as other services are concerned, the agency now is taking steps to specify and develop the necessary data sources.

Ongoing Information Projects at the Rate Setting Commission

In addition to these reports, a number of other information projects currently are under way.

Evaluation of Chapter 495

Commission analysts are developing measures and data requirements for evaluating the impact and effectiveness of Chapter 495.

Hospital Unit Costs

Another effort looks at the variation across the hospital industry in the cost per discharge of providing hospital services.

Detailed information will give hospitals a tool to identify where their costs vary significantly from like hospitals throughout Massachusetts, and will suggest where opportunities for improvement might be realized, thus improving the cost-effectiveness of the entire health care delivery system.

Preventable Hospitalizations

On another front, an extensive small area analysis of "preventable hospitalizations" identifies geographic regions in Massachusetts where access to, or the effectiveness of, primary and preventive care might be a problem.

Expertise & Commitment

Expertise for the Commission's health care information projects is drawn from throughout the agency.

Each study is supported by Rate Setting Commission staff expressly charged with carrying out the agency's mission—an expanded mandate aimed at successfully demonstrating the Commonwealth's commitment to making quality health care accessible and affordable for everyone.

Health Care Quality and the Importance of Outcomes Measurement

MASSACHUSETTS HAS ALWAYS been a leader in the health care arena, particularly in the advancement of new medical technologies and treatments. Unfortunately, there has been a price to pay for being in the forefront; Massachusetts has been noted for its high health care costs relative to the rest of the nation. The Massachusetts Rate Setting Commission is committed to addressing the dilemma of controlling cost and maintaining quality and to strengthening Massachusetts' health care excellence by examining treatment outcomes for Massachusetts citizens. The Commission hopes to facilitate discussions among provider, purchaser, insurer and consumer representatives to build a consensus on health care quality and the measurement of outcomes as a means to promote an improved, cost-effective, and accessible system of health care for the Commonwealth. By using outcomes measurement, Massachusetts has the opportunity to remain a leader in health care quality, and to become a leader in controlling health care costs.

Current Health Care Climate

The current health care climate demonstrates the need for measuring health care quality outcomes. Escalating costs and the increasing number of uninsured have prompted growing concern at the national, state and

local levels. As a result, employers, employees, consumers, insurers, and other health care purchasers are focusing on the quality of health care they receive and are searching for greater value: unsurpassed care at a cost-effective and satisfactory price.

The demand for greater fiscal responsibility will make the nineties a trying time for federal and state governments and private firms. Health care purchasers and providers have been seeking ways to preserve and enhance health care quality in the face of fiscal constraints. Fortunately, quality improvements frequently lead to reduced costs. This point is discussed below.

Outcomes measurement is a means to identify cost-effective, quality providers and to give providers a tool to identify areas for quality improvements. Indeed, President Clinton has proposed outcomes measurement as a mechanism to preserve and enhance quality in The American Health Security Act. Many states are incorporating health care outcomes measurement into their health care reform efforts as they seek to maintain the delicate balance between cost and quality. Having the foresight to address health care quality along with escalating health care costs will allow states and the federal government to promote the best possible health care delivery system, in terms of both quality and cost, for its citizens.

Background Of Quality and Outcomes Measurement

Historically, the responsibility for health care quality was thought to reside *only* with the medical and clinical professions.¹ Consumers and purchasers assumed that there was medical consensus regarding treatment of

various medical conditions. They presumed uniform quality already existed in the American health care system. However, the research of John Wennberg, M.D. and others, has shown that widespread variation exists in the use of medical procedures. Their research has highlighted the lack of professional consensus as to what constitutes effective and appropriate treatment and has caused concern in both the public and private sectors.² This concern, in turn, has resulted in a major push for quality evaluation and measurement in health care.

Health care quality evaluation and measurement, and in particular outcomes measurement, increasingly are being employed by government agencies, purchasers, providers, payers, and consumers to analyze the quality and value of health care. Outcomes measurement looks at what happens to a patient, group, or community as a result of the care that was received; it involves analyzing how that care affects a patient's health status, encompassing physiological, psychosocial, and functional elements.³ Avedis Donabedian, a pioneer in health care quality research, states that "outcomes are those changes, either favorable or adverse, in the actual or potential health status of persons, groups, or communities that can be attributed to prior or concurrent care."⁴ In practice, outcomes measurement is used to:

- ◆ Identify quality of care wherever it exists;
- ◆ Identify health care processes that need improvement; and
- ◆ Develop benchmarks as a way of guiding improvements in health care.

This emphasis on quality and outcomes measurement is a relatively recent phenomenon, for health care policy analyses in the past have focused primarily on cost *not* quality.⁵ Previously, many people assumed that higher health care costs translated into higher quality care. However, research has demonstrated that better outcomes have been shown to correlate in many cases with lower costs in analyses of hospital data.⁶ In essence,

paying more for health care does not *ensure* better health care outcomes.

In fact, in health care, poor quality and high costs are often associated. Poor quality frequently leads to costly inefficiencies, such as unnecessary hospital admissions, increased hospital re-admissions, longer hospital stays and higher morbidity and mortality rates. Performing procedures correctly the first time can result in cost savings through lower readmission rates, fewer errors, and through a reduction in unnecessary or inappropriate care.⁷ In turn, provision of appropriate and effective care promotes greater efficiency by assuring optimal treatment of patients with the same or fewer resources. Thus, providing quality health care now is seen not just as an end in itself, but also as a means for *reducing costs through the provision of appropriate and effective care* and the more efficient use of limited resources.

Defining Health Care Quality

Health care quality has different meanings to the diverse constituencies to which it is a concern. To providers, quality is the ability to offer state-of-the-art medical care; purchasers are most concerned with the appropriateness and efficiency of care; consumers are concerned with the responsiveness of care givers, the degree of symptom relief and the level of functional improvement.⁸ To researchers, quality can be defined as the capability to realize a certain expected degree of health outcomes.⁹ For instance, quality often refers to an expected improvement in health status as a result of treatment. In some cases, it also refers to the prevention of a deterioration in health status.¹⁰ To some extent, quality is a reflection of value judgments.¹¹ How much improvement is considered sufficient? The patient's perception and expectation of quality could differ from the provider's.

Health care quality is hard to define and difficult to measure directly. The many different facets of health care quality, such as

qualifications and licensing of providers, safety and cleanliness of health care facilities, patient satisfaction, functional level, physiological health status, and quality of life contribute to its multidimensional nature.¹² Also, the numerous variables available have contributed to the difficulty in measuring quality. For instance, mortality rates, hospital admission rates and readmission rates, length of stay, and infection rates may all be used to measure health care quality. Deciding which variables or quality indicators are most useful often depends on what is being measured. As a result, there are limited comprehensive frameworks for defining and measuring quality.¹³

Frameworks for Measuring Quality of Care

Donabedian has developed one well-known and accepted approach for looking at quality. His approach incorporates three components:

- ◆ Structure
- ◆ Process
- ◆ Outcome¹⁴

Structure comprises the characteristics of the care or resources compiled to deliver care to the patient.¹⁵ Structure includes the physical facilities, the hospital staff, the licensing and credentialing of health care providers, and patient characteristics, such as age and illness severity.¹⁶ Process refers to the actual delivery of care, including the administration of medications, the ordering of tests, the procedures performed, and the manner of provider-patient communication.¹⁷ Outcome, or the significant result, is the clinical end-product, such as death or improved functional status.¹⁸ This three-pronged approach has formed a foundation for both the traditional and contemporary views of health care quality measurement. It is an approach that has been expanded upon by present-day quality researchers such as John Ware, Jr. and Paul Ellwood, M.D.

Evolution of Health Care Quality

The traditional health care view of quality has focused primarily on the review of health care structures and processes.¹⁹ For instance, in the past, organizations have focused on the structural aspects such as:

- ◆ The effectiveness of medical equipment;
- ◆ Staff licensing;
- ◆ Credentialing issues.

The assumption was that if the appropriate structure were in place, this would provide the foundation for quality of care.²⁰

However, experts in the field now realize that the capacity to provide quality care does not in itself ensure quality. Because of this realization, organizations, such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the Peer Review Organizations (PROs), have shifted their focus to hold hospitals accountable for quality improvement by working with hospitals in an effort *to measure and improve processes and outcomes* instead of identifying “bad apples.” The goal is to promote a collaborative approach for quality improvements within the provider community (see appendix).

In addition, quality of care is increasingly being addressed through Total Quality Management (TQM) and Continuous Quality Improvement (CQI) efforts. The TQM and CQI philosophies, as espoused by American quality experts W. Edwards Deming and Joseph M. Juran and later applied to health care by Donald Berwick, M.D. and others, promote an integrated, team approach to problem-solving and performance improvement. These philosophies stress decision-making based on the collection and analysis of relevant data and the idea of continuous monitoring and improvement of processes. Hospitals increasingly are relying on the TQM and CQI efforts to meet the revised quality improvement standards under development at the Joint Commission. Many hospitals have invested in commercial software systems that are used in

the collection and analysis of clinical outcomes data to facilitate their TQM/CQI efforts.

Uses of Outcomes Measurement

Outcomes measurement is quickly evolving as a scientific method for statistically predicting, reporting and evaluating the clinical outcomes of medical treatment.²¹ Through outcomes measurement, effective and appropriate treatments for specific medical conditions can be identified, and the results then can be passed along to providers and patients. Physicians will have the information they need to improve their medical decision-making and can model their practice after the most effective treatment options and clinically validated guidelines. Likewise, patients will have the information they need to more fully evaluate the risks and benefits of alternative treatments.

In addition, outcomes measurement can help to pinpoint health care processes and structures that might need improvement. By providing specific information on high rates of poor outcomes for various diagnoses and medical conditions, outcomes data can be used to help providers focus on special areas requiring attention or further evaluation. Over time, outcomes measurement will be instrumental in helping providers develop benchmarks and guidelines to evaluate and continuously improve performance.

Challenges of Outcomes Measurement

Today's focus on patient outcomes is important because it recognizes the close link between the patient care received (the processes) and the end result (the outcome).²² However, because processes, and thus the measurement of their outcomes, are very complex, many challenges exist in the field of outcomes research. Researchers throughout the country have been working diligently in efforts to resolve some of the complexity surrounding outcomes measurement.

Some of this complexity is a result of the rapid pace of change in the medical field, the absence of consensus around a standard definition of quality, of a well-defined set of quality indicators, and of universally acceptable quality measurement approaches.²³ Further, multiple approaches to outcomes measurement have resulted in the use of different software systems; thus, non-standardization of data bases also has added complexity to the issue.²⁴

Future Use of Outcomes Measurement

The use of outcomes measurement as a tool for measuring patient health is spreading rapidly in spite of all these challenges. Ongoing efforts *are* being made to improve the tools and technology of outcomes measurement. Outcomes measurement has great potential to foster major improvements in health care systems across the nation.

However, severity-adjusted systems used for outcomes measurement are not flawless.²⁵ These important tools and their results must be used appropriately to ensure success. For instance, many of the severity-adjusted systems which measure outcomes were developed as screening tools to help identify *potential* quality problems. These systems adjust the clinical data to account for the confounding effects of demographic and medical risk factors, such as patient age, sex, and severity of illness on admission. More in-depth medical reviews, though, are usually necessary to definitively determine whether an actual quality problem exists. Because of their relative newness in the industry, these severity-adjusted systems require continual modifications and improvements.²⁶ Care must be taken when providing outcomes data to ensure that users understand the limits of the data.

In fact, some concern already has been raised about the public release of outcomes data.²⁷ It has been suggested that publicly released comparative risk-adjusted outcomes data could be misinterpreted by the public. Concern also has been expressed that publicly



releasing rankings of where providers fall relative to a stated average or standard and in comparison with each other could create negative incentives, causing providers to avoid high risk patients to keep their ratings within "acceptable" ranges. Under these circumstances, providers may be less inclined to acknowledge inadequate patient care. If valuable support from providers is lost, the purpose of quality improvement could be defeated. Providers must play a central role in quality improvement for efforts to be successful.²⁸

Quality measures of health care for Massachusetts can take a big step forward if a collaborative approach to developing quality outcome measures is followed. Concerned parties must be willing to work together to ensure that quality improvement in health care moves forward. Government, providers, purchasers, payers and others must reach a consensus on meaningful measures of quality.

Massachusetts Rate Setting Commission's Role In Outcomes Measurement

The Massachusetts Rate Setting Commission is well-suited to guide Massachusetts in this collaborative approach. Many groups in Massachusetts have undertaken efforts at measuring outcomes; the Commission wishes to provide a framework in which these efforts may be coordinated. The Commission can provide cohesion by promoting a statewide partnership to ensure that those interested in health care quality and outcomes measurement move toward a consensus.

The Commission is prepared to assume responsibility for overseeing the necessary collaborative approach. The Commission's experience working with providers and payers has created a solid foundation from which to build. The Commission has fostered productive relationships from its work with health care issues and data. The Commission continues to consult with its customers—health care

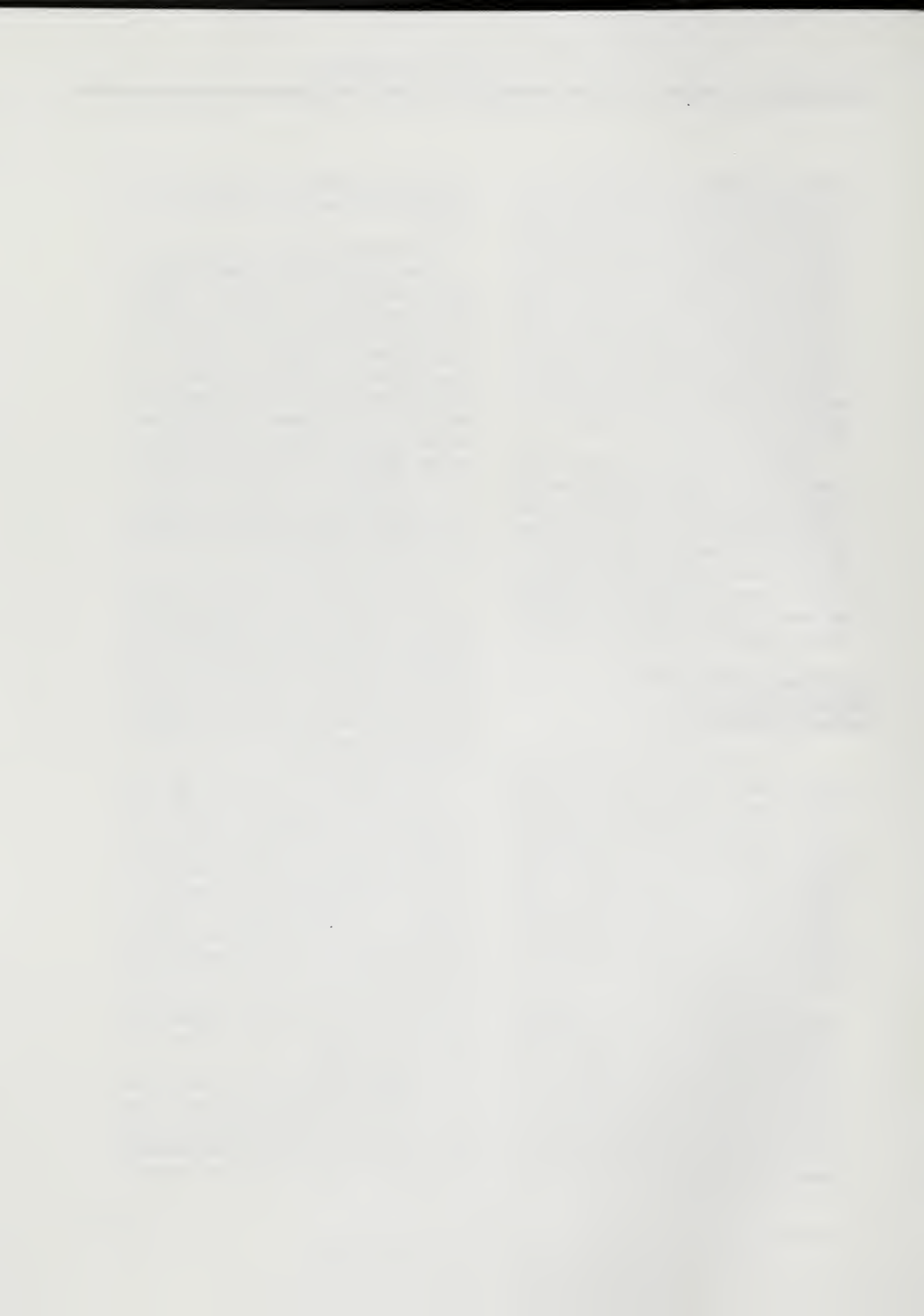
providers, purchasers, and consumers—to determine how best to meet their information needs.

The Commission also has long experience in collecting and analyzing large data bases. The Rate Setting Commission's patient discharge data base, consisting of patient discharge information from all acute care hospitals within Massachusetts, is a valued data source for researchers and will substantially assist efforts to perform outcomes research. The Commission recently used this data base to conduct research on preventable hospitalizations. This research provides opportunities to identify opportunities for improvements in the delivery of primary care. Research such as this helps policy-makers target resources and education efforts more effectively; it will help plans and providers effect positive change.

The Commission recently adopted significant enhancements to its patient discharge data base which will further facilitate outcomes measurement, including the addition of unique patient and physician numbers. These key elements to longitudinal outcome analysis will allow for tracking patient care over time and across institutions, as well as for studying trends in patterns of care.

The Commission also has statutory responsibilities. Under Chapter 495, the Commission is specifically charged with preparing "reports comparing acute hospitals in terms of costs, utilization, and outcomes" and "analyzing such comparative information to assist purchasers of health care in making informed decisions." The Commission's health care information mandate, coupled with its extensive health care experience and its resources, furnishes the Rate Setting Commission with the tools necessary to promote an efficient, accessible, quality health care delivery system.

Massachusetts health care leaders can learn from major efforts taking place at the national, state and local levels (see appendix). Many strategies for outcomes measurement have been pursued, from the mandated



approaches taken in Pennsylvania and Iowa, to the collaborative approach utilized in the Cleveland Health Quality Choice Project, to the Risk Adjusted Monitoring of Outcomes research (RAMO) method mandated in California. The evolving national health care reform effort will allow states to continue their work within a broad framework of national standards.

The Rate Setting Commission realizes that the Massachusetts approach must take into account the complex infrastructure and needs of the Commonwealth. In addressing these needs, providers, government, purchasers, and consumers all have an important role to play. Greater responsibility falls on the shoulders of providers to monitor and continuously improve their performance. It is the role of government to unite the diverse constituencies, to provide health care information to encourage the efficient operation of a competitive health care marketplace, and to ensure quality health care to the public. In turn, purchasers and consumers must use this information to make wise purchasing decisions and to encourage and participate in quality improvement efforts.

The Commission recognizes that such an effort is complex and will require technical expertise from the medical community and other experts, as well as input from the

consumers and purchasers of health care. Therefore, the Commission will work in collaboration with the various health care constituencies in Massachusetts to pursue and promote health care outcomes measurement. To facilitate these efforts, the Commission will convene a working group on health care quality and outcomes measurement with interested and knowledgeable parties. Together these parties will develop a sound, scientifically valid and medically meaningful approach to outcomes measurement.

Conclusion

The *benefits* of outcomes measurement in Massachusetts will be:

- ◆ higher quality, more efficient and cost-effective systems of medical care for the citizens of Massachusetts;
- ◆ Improved medical decision-making;
- ◆ Improved consumer choice in health care.

The Commonwealth will realize these benefits and address the critical issues of the cost, quality and value of health care in Massachusetts through the efforts of a working group of interested parties that will build a consensus for the development and implementation of a system of information on health outcomes.

Endnotes for Report

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⁴ Mark Blumberg. "Risk Adjusting Health Care Outcomes: A Methodologic Review," *Medical Care Review*, 43, 2 (Fall 1986): p. 352.

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⁶ Thomas Reepmeyer. "Market forces can boost quality, lower costs," *Healthcare Financial Management*, p. 60.

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- ¹⁴ Vincent Omachonu. "Quality of care and the patient: New criteria for evaluation," *Health Care Management Review*, 15, 4 (Fall 1990): p. 43.
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- ¹⁶ Alvin Tarlov; John Ware; Sheldon Greenfield; Eugene Nelson; Edward Perrin; and Michael Zubkoff. "The Medical Outcomes Study: An Application of Methods for Monitoring the Results of Medical Care," *JAMA*, Vol. 262, No. 7 (August 18, 1989): p. 926.
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- ¹⁸ *Ibid.*, p. 926.
- ¹⁹ Peter Spitzer. "Information Systems Support For Healthcare Quality: A Comprehensive Framework," *Computers in Healthcare* (September 1991): p. 24.
- ²⁰ Joyce Lanning. "The Health Care Quality Quagmire: Some Signposts," *Hospital & Health Services Administration*, 35, 1 (Spring 1990): p. 44.
- ²¹ Association of American Medical Colleges. *Medical Practice Patterns, Patient Outcomes, and Quality of Care Assessment: A Selected Annotated Bibliography* (September 1989): pp. 6-7.
- ²² Stephen O'Connor and Joyce Lanning. "The new health-care quality: value, outcomes, and continuous improvement," *Clinical Laboratory Management Review* (July/August 1991): p. 226.
- ²³ Health Care Quality Alliance. "Quality Health Care: Critical Issues Before the Nation," *Benefits Quarterly*, Vol IV, No. 4 (1988): p. 16.
- ²⁴ JoAnne Alter and David Holzman. "Many research issues need to be resolved," *Business & Health, Special Report* (September 1992): p. 23.
- ²⁵ Joyce Lanning. "The Health Care Quality Quagmire: Some Signposts," *Hospital & Health Services Administration*, 35, 1 (Spring 1990): p. 45.
- ²⁶ *Ibid.*, p. 45.
- ²⁷ Joyce Lanning. "The Health Care Quality Quagmire: Some Signposts." *Hospital & Health Services Administration*, 35, 1 (Spring 1990): p. 49.
- ²⁸ Health Care Quality Alliance. "Quality Health Care: Critical Issues Before the Nation," *Benefits Quarterly*, Vol IV, No. 4 (1988): p. 29.

Appendix A

Charts Comparing Selected Quality Measurement Initiatives

State Mandated Initiatives ♦ A2

Purchaser/Business Driven Initiatives ♦ A3

National Initiatives ♦ A4

Massachusetts Based Efforts ♦ A5

Historical Perspective: Federal Government Sponsorship (1986-Present) ♦ A6

Historical Perspective: Evolution of Practice Guideline Development ♦ A7

STATE MANDATED INITIATIVES

STATE	PENNSYLVANIA	IOWA	CALIFORNIA
AGENCY	PHCCC	IHDC	OSHPD
PURPOSE	To collect & publish information on health care costs & quality & to support a competitive environment	To gather, compile & distribute data on health care cost, use & quality for use in purchasing & policy decisions	Mandated by Assembly Bill 524 "to commence risk-adjusted monitoring of outcomes" of hospitals' inpatient care
YEAR ESTABLISHED	1988	1983	1991
PROGRESS	Data collected since 1988: mandated use of MediGroups system. First report released 1991, additional analyses added in 1992. Continuation of agency in present configuration uncertain.	Data collected since 1983, first report released in 1992. IHDC involved with Hartford funded CHIMS project & RWJ state healthcare financing reform project.	Data collected on two areas: Acute Myocardial Infarction and Dissecting Aortic Aneurysms for 1992. Validation study planned for this year to determine usefulness and to determine missing variables. Plan to expand to include more detail.
DATA SOURCES	UB-82's & medical record abstracts	UB-82's and Medical record abstracts	ID-9-CM discharge database. Plan to incrementally increase data required by hospitals.
QUALITY MEASUREMENT	Quality measured in terms of expected versus actual outcomes	Quality measured by comparing risk-adjusted outcomes for each hospital.	Risk-adjusted Outcome Measures (RAMO), customized to particular diseases.
REPORTS	Hospital effectiveness reports; small-area analyses & physician specific mortality reports for coronary artery bypass graft surgery.	Hospital resource & outcome reports; average hospital charge reports & physician surgical charge reports.	First report on Acute Myocardial Infarction and Dissecting Aortic Aneurysms released to hospitals 8/93 for review. Public release is planned for 11/15/93.
COSTS: START-UP	Approx \$115,000/hospital for start-up.	Approx \$135,000/hospital for start-up.	No additional cost for hospitals.
OPERATIONS	\$1.6 million/year operating budget for PHCCC.	\$290,000/year for operating budget for IHDC.	Approx \$500,000/year operating budget for OSHPD.

PHCCC: Pennsylvania Health Care Cost Containment Council

IHDC: Iowa Health Data Commission

OSHPD: Office of State Health Planning and Development

Source: ISI Research & Training Institute in collaboration with The Hospital Payment System Advisory Commission (HospPAC) March 1993; MESC Interviews and Research.

PURCHASER/BUSINESS DRIVEN INITIATIVES

	CLEVELAND HEALTH QUALITY CHOICE PROJECT	FLORIDA HEALTH CARE PURCHASING COOPERATIVE	MIDWEST BUSINESS GROUP ON HEALTH	GENERAL EFFECTS
PURPOSE	To measure the quality of hospital care & provide data on utilization, outcomes, cost & patient satisfaction to purchasers for decision making.	To link government entities into purchasing groups & provide those groups with information to make informed purchasing decisions.	To form purchasing groups & improve health care quality through studies & strategies that address service & purchasing issues.	To contain GE's health care costs by using data on utilization, outcomes, quality & costs to identify & solve problems in concert with health care "partner."
YEAR ESTABLISHED	1985	1992	1980	late 1991
PROGRESS MADE	Data collected since 1991. Risk-adjustment methods selected. Users educated on potential use of information. Hospitals receive preliminary analyses.	Systems & guidelines are still being developed. 3-4 regions in the state will soon be identified for pilot purchasing projects.	Purchasing groups formed. Studies conducted include health care purchasing models, quality assessment tools, & value managed purchasing projects.	Partnership relationship with provider has been established. Data is routinely collected & reviewed. Strategies are developed based on problems identified in data.
DATA SOURCES	Patient record abstracts & patient satisfaction surveys.	State collected hospital admissions data will be supplemented by claims data later in the project.	Claims data, with supplemental use of patient surveys & medical records for special projects.	Provider partner supplies utilization & claims data.
QUALITY MEASUREMENT	Risk-adjusted outcomes & patient satisfaction surveys are compared across hospitals.	Still under discussion.	Definition specific to the goals of the project. Usually relate to process rather than outcome.	Target versus actual utilization rates & customer service measures.
REPORTS/ANALYSES	Outcome indicator reports for ICU and non-ICU admissions combined with patient surveys. Preliminary reports released to hospitals; public release expected soon.	Analysis will be conducted to identify the best value in health care services, defined as an appropriate combination of price & quality.	Competitive health care purchasing models. Purchasing system evaluations. MRCH Bulletin published bimonthly.	Monthly & quarterly reports on utilization rates to identify problem areas.
COSTS START-UP OPERATIONS	Start-up \$80,000/hospital or \$2,480 total. Operations \$520,000 for 2 yrs.	Start-up budget in \$500,000/year for first 3 years. Operations will be supported by participant fees.	Start-up costs not available. Operations of current value improvement projects funded at \$399,000 for 47 months.	Not available. Most data production & analysis costs are included in contract with health care partner.

Source: ISI Research & Training Institute in collaboration with The Hospital Payment System Advisory Commission (HospPAC), March 1993; MRSC Interviews and Research.

NATIONAL INITIATIVES

PROJECT AGENT	HEDIS	JCAHO QUALITY INDICATORS	MARYLAND INDICATOR PROJECT	HCQII
YEAR ESTABLISHED	NCQA 1989	JCAHO Since 1987	MARYLAND HOSP ASSOC.	HCFA 1993
GOALS	To enable plans and employers to accurately trend health plan performance. To develop a system of comparable performance measures.	To provide health care organizations with indicators to be used for monitoring systems for quality.	To collect data on factors to investigate potential problems in care delivery. Provides a means for benchmarking.	To improve the quality of care for Medicare beneficiaries by refining and establishing activities for PRO's.
DATA SOURCES	Core set of performance measures related to four areas: quality, access and patient satisfaction, membership and utilization and finance.	Monitoring done by health care organizations on set of indicators developed by JCAHO. (O.B., Anesthesia, Cardio-vascular, Oncology & Trauma)	Indicators developed and monitored by MediQual. Now with 600 hospitals nationally. (40 Hospitals in Mass.) Data is submitted by hospitals. Total of 14 indicators. Coordinated by MHA in Mass.	Two national data collection sites to standardize collection of Uniform Data sets. Charts will be sent to these sites for data abstraction.
QUALITY MEASUREMENT	Measure health plans' performance in delivery of certain selected services. (Preventative Medicine, Prenatal Care, Acute and Chronic Disease and Mental Health & Substance Abuse)	Indicators developed and tested by JCAHO. Focus is on CQI for organizations. Currently is for 1996 to be mandatory.	Indicators developed with MD input to look at "meaningful events." Indicators include: mortality, readmissions, infections, returns to ER and ambulatory indicators.	Cooperative Projects to look at specific diagnosis. Pattern Analysis of care and outcomes will be based on practice guidelines. Will replace old case review method.
REPORTS	No reports as yet. Plan is for HMO's to begin collecting data and first report will be next year.	Internal reports for CQI will be required for accreditation in 1996.	Currently information is presented at a "retreat" with the focus on benchmarking and quality improvement planning.	Pattern analyses will be used to identify areas for improvement for providers and organizations. The focus is on education to change behaviors.

HEDIS Health Plan Employer Data and Information Set

NCQA National Committee for Quality Assurance

JCAHO Joint Commission for the Accreditation of Health Care Organizations

HCQII Health Care Quality Improvement Initiative (HCFA's Fourth Scope of Work for PRO's)

MEPC Massachusetts Health Care Purchasers Group

MASSACHUSETTS BASED EFFORTS

PROJECT	VRAOM	MARYLAND INDICATOR PROJECT	CMRCH QUALITY/VALUE PROJECT	HMO Cost/Quality Challenge
SPONSOR	MassPRO	Mass. Hospital Assoc.	Central Mass. Business Group on Health	Mass. Health Care Purchasers Group
PURPOSE	To establish valid risk-adjusted outcome measure for the purpose of medical self-assessment and self-improvement.	To collect data on factors that are generally regarded as meaningful events, in order to investigate potential problems in the delivery of care.	To analyze the appropriateness of admission and efficiency of care for three regions: Central Mass., Merrimack Valley and Greater Boston in order to provide purchasers with information related to quality and value.	HMO challenge on Cost and Quality. To provide purchasers a measure of cost and quality to enable them to make informed choices.
YEAR ESTABLISHED	1993	1993	1993	1993
DATA	HCFA's Fourth Scope of Work Cooperative Cardiovascular Project data base.	Medi-Qual's system for benchmarking.	Medi-Qual's "MQ-Pinpoint" system. Uses UB-82 data.	MC PET tool for performance evaluation of managed care organizations.
QUALITY MEASUREMENT	Model of Cooperative Cardiovascular Project.	Focus is on "meaningful events"	Focus is on severity admissions of the under-65 population, "for whom there is a low-risk of negative outcomes." The intent low risk population.	Focus is on financial viability, physician credentialing and turnover and quality assurance.
REPORTS	For internal use to assist providers in identifying areas of potential improvement.	Currently results are shared with organizations at a seminar.	Reports have been shared with providers for internal improvement while other providers' results are blinded.	No reports as yet.

VRAOM: Validate Risk Adjusted Outcome Measures



HISTORICAL PERSPECTIVE: FEDERAL GOVERNMENT SPONSORSHIP (1986-PRESENT)

Program/Activity	Government Department Sponsor	Year	Results
NIH Consensus Panels	NIH	Since 1977	Over 40 consensus development conferences.
Patient Outcome Assessment Research Program	Public Health Service (NCHSR)	1985	Extramural funding for effectiveness initiative to promote outcomes and appropriateness research.
Physician Payment Review Commission (PPRC)	Congress	1988	Advised Congress to support guideline development to reduce practice variation and inefficient services.
Prospective Payment Assessment Commission	Secretary of US Department of Health and Human Services	1988	Recommended an extensive review of criteria for assessing medical appropriateness
General Accounting Office	Congress	1988	Advised Congress to create new federal entity and define good medical practice for Medicare quality assurance efforts.
Four Separate Congressional Bills	Congress	Spring 1989	Calling for creation of federal PHS agency to develop and disseminate guidelines.
Agency for Health Care Policy Research Replaced NCHSR (Omnibus Reconciliation Act)	Public Health Service	1989	New Agency funded \$126 million in 1990 and \$221 million by 1992 to promote development and dissemination of practice guidelines.
National Leadership Commission on Health (Co-chaired by former Presidents Carter, Ford & Nixon)	Bush Administration	1989	Recommended expanded federal support for effectiveness R&D of national guidelines.

Source: Baggelman, M., M.D., Presentation at Faulkner & Gray's Medical Utilization Review Conference, Washington D.C., Sept. 21, 1993.

HISTORICAL PERSPECTIVE: EVOLUTION OF PRACTICE GUIDELINE DEVELOPMENT

ORGANIZATION	EXPERT PANEL OR COMMITTEE PROCESS	INCORPORATION OF SCIENTIFIC LITERATURE	EXPLICIT CRITERIA (ALGORITHMS)	COMPRE- HENSIVE CRITERIA	IDENTIFIED VARIATION OPTIONS	KNOWLEDGE ENGINEERING COMPUTERS	RESULTS
Specialty Societies							Vague, non-comprehensive guidelines that are difficult to implement.
PRO's							Often developed by one or a few experts, sometimes poor quality guidelines open to misinterpretation by different reviewers.
NIH							Attempts to integrate scientific literature, non-comprehensive, only covers selective criteria. Problem finding exact consensus.
RAND							Marked innovations in guideline development; explicit and comprehensive but with limited modeling of expert thinking.
AHCPR							As with RAND, explicit and comprehensive, but limited. Focus was on process of guideline development.
Medical Intelligence INC.							Borrowed from previously developed work and improved methods and modeling expert thinking. Also incorporated patient preference data.
ACADEMIC MEDICAL CONSORTIUM							Best publicly funded attempt to develop explicit, comprehensive guidelines.

FUTURE DEVELOPMENT: EVIDENCE BASED GUIDELINES, ANNOTATED ALGORITHMS, PATIENT PREFERENCE

Source: Beggelman, M., MD, Presentation at Faulkner & Gray's Medical Utilization Review Conference, Washington D.C., Sept. 21, 1993



Appendix B

Compendium of Models & Data for Quality Measurement

Measurement Efforts ♦ B2-B8

- Agency for Health Care Policy and Research (AHCPR) ♦ B2
- California ♦ B2
- Cincinnati ♦ B3
- Cleveland ♦ B3
- Health Care Financing Administration (HCFA) Mortality Data ♦ B3
- Iowa ♦ B4
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO) ♦ B4
- Maine ♦ B5
- Maryland ♦ B5
- Minneapolis ♦ B5
- National Committee for Quality Assurance (NCQA) ♦ B6
- National Demonstration Project on Quality Improvement in Health Care ♦ B6
- New Jersey ♦ B7
- New York ♦ B7
- Pennsylvania ♦ B7

Data Efforts ♦ B8-B10

- Colorado ♦ B8
- Florida ♦ B9
- Health Care Cost and Utilization Project (HCUP-3) ♦ B9
- HCFA's Health Care Quality Improvement Initiative ♦ B10

Measurement Efforts

Agency for Health Care Policy and Research (AHCPR)

The Agency for Health Care Policy and Research (AHCPR) was established in December 1989 under the Department of Health and Human Services. It is the federal agency responsible for establishing clinical guidelines, as well as for promoting outcomes research and data dissemination.

AHCPR is in the process of developing 16 clinical practice guidelines to help physicians and patients make more informed decisions on their care. Some of the guidelines are for low back problems, ear infections in children, mammography screening, and acute pain management.¹ The agency's Medical Treatment Effectiveness Program (MEDTEP) is helping to promote outcomes research and to better define what appropriate treatment is. The focus is on frequently performed, high cost procedures in which great variability exists in practice patterns.² In particular, the AHCPR sponsors Port Studies (Patient Outcomes Research Team), disease-specific studies that help to identify the most effective treatment alternatives.

California

Legislation passed in October of 1991 requires that the California Office of Statewide Health Planning and Development (OSHPD) "commence risk-adjusted monitoring of outcomes of hospital inpatient care." California is now carrying out risk-adjusted monitoring of outcomes studies (RAMO).

RAMO refers to "statistical systems that continuously measure outcomes" and "can be applied to virtually any health outcome."³ One of the benefits of the RAMO approach according to its author, Dr. Mark Blumberg, is that the risk adjusters are "customized" to the particular disease, procedure, and outcome under study. He claims this differs from the commercial severity-adjusted systems, many of which use more generic risk adjusters, such as age and sex. Another benefit of the RAMO approach is that it relies on already available databases. By utilizing its current discharge database, California was able to eliminate the costly expenses associated with other measurement systems that require extensive medical record abstraction.

During its first year, California has undertaken studies of Acute Myocardial Infarction (AMI) and cervical and lumbar discectomies. For the AMI study, they will analyze in-hospital mortality. For the discectomy study, they will analyze both reported complications (bleeding, ruptures, death) and LOS outliers following the procedure. The first report, which includes both these studies, was released to California hospitals in June of 1993 for a 60 day review and comment period. It is expected to be released to the public in Fall/Winter of 1993. This first report will only offer two categories: better than average performers or "centers of excellence" and all others. At this point, the researchers felt it would be misleading to have further categories, because they have only one year's worth of data.

California is planning a validation study to be implemented within the next year to assist them in determining the usefulness of the study results and to identify any missing, but potentially important variables. Eventually, California plans to expand their categories to include more detailed break-outs. In addition, California has a third study underway which will look at Obstetrics care, including both normal deliveries and delivery by C-Section.

According to proponents, the RAMO approach used in California is beneficial because it is a more cost-effective approach. Researchers collect only what they need for the specific condition under study, not large amounts of unnecessary data on every condition. As a result, this approach does not impose major data collection burdens on hospitals. In fact, hospitals are already collecting and submitting the health care discharge data that is used. Moreover, it is a focused approach. The

state chooses its areas of greatest interest, committing limited resources to only a few important studies at any one time.

However, the RAMO approach used by California does have some limitations. Because data abstraction is not required, data is limited to ICD-9-CM data. As a result, there is little physiologic function data available. According to some of its users, this may make for a weaker predictive model than those developed utilizing physiologic data. This weakness, though, may be addressed by some limited data abstraction, or by the addition of needed data elements to the discharge data set.

Cincinnati

Although part of the Greater Cincinnati Health Care Coalition, four major Cincinnati employers, Procter & Gamble, Cincinnati Bell, The Kroger Co., and GE Aircraft Engines have collaborated in their own separate effort to improve the quality of health care and to contain spiraling health care costs. Working with 14 Cincinnati area hospitals, their goal is to measure the quality and cost efficiency of certain medical services provided by the participating hospitals, using measures such as length of stay, cost, resource utilization, and medical outcomes for specific diagnoses.⁴ With the involvement of both doctors and hospitals and through the use of Iameter, a severity-adjusted outcomes measurement system, uniform data are being analyzed for 1991-1993.

One goal of the project is to reduce the widespread variations in practice patterns. Cincinnati already has claimed some success, as area hospitals have experienced reduced variation in length of stay and charges for various medical treatments.

Initially, hospitals' identities are being kept confidential and severity-adjusted data is being shared with hospitals to allow them a chance to review the data and make improvements. However, employers may start using this information to make purchasing decisions as early as 1994. Eventually, some employers may contract with select hospitals as centers for excellence for certain procedures, like cardiology and obstetric and gynecological services.⁵

Cleveland

The Cleveland Health Quality Choice Project is an example of a voluntary collaborative effort between the purchasing community and the provider community. The Cleveland Coalition "Market Reform Strategy" is to identify hospitals that deliver high quality, cost-effective health care services. The Coalition's aim is to facilitate a "Buy Right" approach by encouraging employees to seek care through high quality, cost-effective providers via various incentives (lower out-of-pocket expenses, for example). The Coalition will put out two reports per year which include risk-adjusted data on Intensive Care Unit (ICU) outcomes and non-ICU outcomes. For the ICU data the Coalition uses the APACHE system and they will be reporting on both Length of Stay (LOS) and Mortality. The APACHE data for Cleveland can be compared to a national APACHE database. For the Non-ICU they chose to contract with Michael Pines and Associates to create a system specific for their project. Pines developed a model that would look at LOS, mortality, and adverse outcomes.

The Cleveland Coalition will also distribute the results of their 69 question Patient Satisfaction Tool. Health benefit managers will use data from these comparative hospital reports and from the Patient Satisfaction Tool to steer their employees towards those providers with the highest quality outcomes and the most reasonable costs.

Health Care Financing Administration (HCFA) Mortality Data

HCFA has released hospital mortality data in the past and had been refining the methodology for analyzing and presenting risk-adjusted mortality data. Recently, the new HCFA administrator halted publication of the hospital-specific mortality data. HCFA's intent in halting publication was

to review the usefulness of its format and methodology, in particular, the risk-adjustment methodology, before releasing any further mortality data.

Iowa

The Iowa Health Data Commission (IHDC) was established in 1983. Its goals are to collect and disseminate data on health care costs, use, and quality for use by purchasers and policy makers.⁶ Iowa began collecting data on quality and outcomes in 1990. Their effort is similar to Pennsylvania's in that both states require the use of risk-adjusted software systems. Like Pennsylvania, Iowa requires that all acute hospitals with over 100 beds purchase Mediquail's MedisGroups software system.

However, the use of a risk-adjusted severity system does entail increased costs for hospitals. These costs include:

- ◆ the initial purchase of the severity-adjusted software system
- ◆ continuous software and hardware upgrades
- ◆ personnel necessary for medical record data abstraction

Start-up costs were estimated to be approximately \$135,000 per hospital.⁷ Such costs can be a hindrance to other states that are looking for ways to measure outcomes, especially since many hospitals already have limited resources and funds.

Furthermore, in Iowa, hospitals must collect data for 66 DRGs which have been selected by the Iowa Health Data Commission. The DRGs selected by the Commission were chosen because of their high frequency rate. The Iowa Health Data Commission uses these 66 DRGs to publish a report on hospital performance, listed by DRG, for the various hospitals. The Iowa Health Data Commission puts out several reports, including reports on hospital resource and outcomes, average hospital charges, and physician surgical charge reports.

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)

Since 1986, the Joint Commission has been involved in efforts to improve its accreditation process through changes in the nature of its quality review. The Joint Commission is trying to move beyond structural quality aspects of hospital care. Their goal is to expand quality reviews to incorporate process and outcomes measures. By measuring health care processes and outcomes and by apprising hospitals of the results, the JCAHO hopes to work with accredited and accreditation-seeking hospitals to help them continuously improve their performance.⁸

The Joint Commission has moved forward with an "Agenda for Change" that includes:

- ◆ Development of accreditation standards focusing on assessment of the health care organization functions that most directly impact the quality of patient care;
- ◆ Promotion of continuous quality improvement in health care organizations' performance.

To achieve this agenda, the JCAHO has undertaken the quality indicator monitoring project. According to the Joint Commission, indicators are "relevant measures of performance that are sufficiently reliable and valid to be useful in assessing the performance of a health care organization."⁹ The JCAHO convened national panels of experts to assist them in selecting quality indicators. They have selected 9 sets of indicators to research further; eventually, they will use these to monitor quality. The strategy used in selecting quality indicators was to determine easily accessible data elements either from the uniform bill (UB-82/UB-92) or from other data sources.

The first group of indicators researched were for Obstetrics and Anesthesia. Since 1988, these two sets of indicators have undergone extensive and rigorous testing for reliability and validity, and for risk-adjustment. These indicators, as part of the monitoring project, will be used to assess the performance of the organization. After the project is completed, the results will be shared with

hospitals in efforts to assist them in monitoring and continuously improving their performance in these areas. Cardiac Care, Oncology Care, and Trauma Care are the next set of indicators entering the test phase. Future groupings are to include Medication Use and Infection Control, Home Infusion Therapy, and Depressive Disorders.

Though the current JCAHO effort involves voluntary hospital participation, the long-term goal of the project is to require participation from all hospitals seeking Joint Commission accreditation. As early as 1996, these hospitals could be required to transmit quarterly indicator data to the JCAHO. The JCAHO will then publish quarterly comparative reports on hospital quality. The data from these reports will assist the JCAHO in carrying out its on-going monitoring duties, including targeting areas for further review during on-site visits. Ultimately, the JCAHO hopes the "Agenda for Change" will help to foster a climate of continuous quality improvement within health care organizations.

Maine

The Maine Health Care Finance Commission has four advisory committees which focus on one group of procedures at a time, gathering data on that specific area and comparing rates. A short paper is expected to be ready soon which will summarize the first findings done on cardiovascular surgery rates and corresponding death rates, number of procedures and related procedures. After considering various ways to look at quality, they have decided to focus on a selected group of procedures and the associated mortality rates, LOS, and use rates.

Maryland

The Maryland Hospital Association Quality Indicator Project is a research project that was begun in 1985. Initially, this was a voluntary pilot project with seven participating hospitals. The project has since expanded to involve participation from 48 states and over 600 hospitals. The project's goal is to find a method for hospitals to measure objectively the quality of clinical care they give. Most hospitals already collect the data that is used for this project making it relatively inexpensive and less disruptive for the hospitals participating.¹⁰ The project allows hospitals to track their own performance on the quality indicators over time; it also allows for benchmarking of an individual hospital's performance as compared with the other hospitals in the project.¹¹

The project monitors 10 inpatient outcome indicators and five ambulatory care indicators. These indicators are to be used to help identify potential areas for improvement. The inpatient indicators were validated over a three year time span and include mortality, unplanned readmissions and infections, among others. Some of the ambulatory care indicators include unplanned returns to the emergency department and waits of more than six hours in the emergency room. An annual participation fee (approximately \$2,000 - \$3,000) covers the costs of the special project software, manuals, and quarterly hospital comparative reports.¹² The tools of the Quality Indicator project are proprietary and the results of the project are confidential. The data from the project are used to promote performance assessment and improvement.

Minneapolis

The Minneapolis Coalition on Health has developed a committee to evaluate the efficiency and quality of inpatient and outpatient managed care plans.¹³ The Coalition plans to publish the research on managed health care plans sometime in 1993. In addition, they are researching patient satisfaction of state employees enrolled in HMOs and PPOs.



National Committee for Quality Assurance (NCQA)

NCQA is a non-profit organization working toward improving quality in patient care. In carrying out this mission, NCQA has worked in collaboration with managed care plans, purchasers, consumers and the public sector to develop the Health Plan Employer Data and Information Set (HEDIS) 2.0. HEDIS 2.0 was developed to address the expressed need of employer purchasers for information on the quality and value of health plan services purchased. HEDIS 2.0 will help address this need as it will allow for trending of a specific health plan's performance data and for comparisons of the data across plans in certain circumstances.¹⁴ The system will measure four principal areas of performance which include quality, access and patient satisfaction, membership and utilization, and finance.

The HEDIS 2.0 system attempts to standardize how health plans define, measure, and report health plan performance information. This foundation of health plan performance information serves as a measurement tool for purchasers and others to assess and track a health plan's value and the quality of its performance over time. This performance system provides information that assists health plan providers with improving services provided to their members.

The quality component contains selected broad-based categories. These areas consist of preventive services, prenatal care, acute and chronic illness, and mental health and substance abuse.¹⁵ Each area has specific performance parameters defined. For instance, preventive services looks at childhood immunization rates by age to determine whether those who have received immunizations did so in accordance with the recommended immunization schedule. Preventive services also look at the rates of certain screenings for age and gender appropriate groups, including screenings for cholesterol, mammography, and Pap smears. Prenatal care examines the rate of visits in the first trimester, as well as the rate of low birth weight neonates. Acute and chronic illness examines emergency room visits and admission frequency, while the areas of mental health and substance abuse focus on readmission incidences.

The development of these quality performance measures are an initial step. These core measures are constantly being refined based on health plan providers' and employers' evaluations and feedback. The purpose of these initial measures is to allow for further discussion of the process and improvement of health care. Eventually, benchmarks will be developed for each performance measure.

National Demonstration Project on Quality Improvement in Health Care

Donald Berwick, M.D., a pediatrician and former vice-president for quality measurement at Harvard Community Health Plan in Boston and president of the Institute for Health Care Improvement, together with the Juran Institute Inc., initiated a project to apply industrial quality management methods to health care. By teaming groups of providers with quality experts from American business and universities, they hoped to make significant improvements in the health care processes of the selected providers.

The project found that quality management methods could be successful in health care organizations.¹⁶ For example, they were successful in improving organizational process problems in the areas of billing, admissions, and discharge planning, processes that indirectly affect patient care. However, the project did not directly address the improvement of clinical processes themselves.¹⁷ The Institute for Health Care Improvement, a non-profit organization which developed out of the National Demonstration Project, was formed two years ago to promote national efforts for health care quality improvement.



New Jersey

The Health Care Payers Coalition of New Jersey is a group of business and labor organizations that was formed approximately a year ago because of concerns with the health care system. They are a purchasing cooperative that is seeking to benefit from New Jersey's approaching deregulated, competitive market-based health care system by contracting with only quality, cost-effective providers. The Coalition recently published a list of 48 preferred hospitals in New Jersey that met its quality and cost criteria. The criteria were developed using publicly available sources.

The Coalition used two quality criteria in its overall quality index. These criteria included the HCFA mortality data from the 1992 report (which reflects 1990 data) and hospitals' licensure penalties, as reflected by fines imposed on the hospital by the New Jersey Department of Health. The Coalition found that problems with mortality were correlated with problems with licensure. They are now working with New Jersey specific mortality data from their DRG software system.

The cost criteria for the overall index were developed based on an analysis of the top 10 DRGs and top 10 Surgical DRGs. They did an analysis of hospital prices based on volume for the selected DRGs. The cost criteria and the quality criteria were combined into one overall quality index for each hospital.

The Coalition also is working with InterStudy on a patient satisfaction tool. In addition, they will be setting up a payer database from the claims databases of their members. They also are researching the usefulness of Iameter, a severity-adjustment software package that compares outcomes, costs and length of stay and uses data primarily from hospital uniform billing data.

New York

The New York State Department of Health is actively working to improve outcomes in heart disease patients, in particular the quality of coronary artery bypass surgery (CABG) patients for cardiac surgery centers and physicians in the state. To accomplish this, they convened a cardiac advisory committee, consisting of cardiologists, cardiac surgeons and other professionals, to determine what information to collect and how to obtain it.

New York could not locate a software package suitable for this project. As a result, it uses a separate data collection method. This data collection process allows them to look at more patient-level detail surrounding the episode of care. Their data collection looks at significant risk factors in addition to adjusting outcomes for severity of illness.

While this effort is voluntary, many hospitals and physicians participate using statistical analysis. This effort has resulted in a cardiac profile system which allows for longitudinal objective assessment of hospital and surgeon performance. New York's endeavor is thought to be successful as evidenced by falling mortality rates, given a growth in the number of operations and the level of patient severity.¹⁸

Pennsylvania

Pennsylvania was one of the first states to measure quality and costs with the creation in 1986 through legislation of the Pennsylvania Health Care Cost Containment Council. The Council is an independent state agency whose mission is to address the cost and quality of health care in Pennsylvania. The 21 member appointed board is made up primarily of business and labor representatives, although there is some representation from the medical and provider community. The main aim of the Council is to provide health care cost and quality data to purchasers. The Council's funding has fluctuated over the past several years, but it has averaged around \$2 million.

Pennsylvania mandated the use of Mediqua's MedisGroups software for all acute care hospitals over 100 beds. MedisGroups was already being used by many hospitals in the state,



allowing for an easier transition. As in Iowa, mandating a severity-adjusted system entailed the costs of purchasing the system, as well as the additional costs for medical record data abstraction. The estimated start-up costs were approximately \$115,000 per hospital.¹⁹

The Council has issued a variety of reports: hospital effectiveness reports, which compare hospitals by selected DRGs on mortality, major morbidity, length of stay and charges; small area analysis reports; and physician-specific mortality reports on Coronary Artery Bypass Graft Surgery (CABG) in which they ranked both hospitals and doctors as to whether they were above or below the expected range on death rates for this procedure.²⁰ The data for the CABG report was adjusted for age and sex, as well as for severity upon admission.

Pennsylvania's decisions to mandate the use of a specific severity-adjusted system and to publicly release the results of their findings have created controversy within the state. The Hospital Association of Pennsylvania (HAP) has called into question the appropriate use of measurement tools such as the MedisGroups system. The Association has noted that MedisGroups' results alone are not a sufficient basis on which to rank the quality of hospitals care: MedisGroups was developed as a screening device, *not* a stand-alone system of quality of care.²¹ They state that the results should be used as a starting point for discussion, education and further investigation to ascertain whether quality problems do indeed exist.

In particular, there were concerns with the Coronary Artery Bypass Graft Surgery (CABG) reports.²² Some Pennsylvania hospitals questioned the accuracy of the admission severity score, claiming that all the appropriate risk factors were not taken into account. They felt the results under-reported the expected mortality rates of high risk patients. In addition, the CABG report was critiqued because, as many hospitals noted, not all deaths can be attributed directly to physician care. Indeed, it is well-known that other clinical and hospital processes do affect outcomes. There are questions as to how or if these different influences can be accounted for separately. Other criticisms concerned the lack of a more comprehensive set of outcomes indicators beyond mortality, i.e. relief from symptoms, long-term outcomes, and repeat surgeries.

While hospitals have had disagreements over the use of the MedisGroups system, the hospitals' input has helped the Pennsylvania Health Care Cost Containment Council and MediQual to make improvements to their original methodology. Some of these improvements include further adjustments for age, the separation out of cancer as a co-morbidity, the move to annual reports instead of quarterly reports to ensure a sufficient sample size, and recent MedisGroup upgrades intended to promote a more disease specific (less generic) system.

In the future the Council will be working towards developing an outpatient database for analyses of outpatient outcomes.

Data Efforts

Colorado

Colorado mandated that acute hospitals with 125 or more beds collect specific health care data elements, including patient history information and key clinical findings. While Colorado did not mandate a specific vendor, the specifications fit well with the MediQual product. The data elements are essentially a subset of the items collected under the MediQual system. As a result, all but one of the 26 or so Colorado hospitals affected by the ruling are using MediQual's product. Data is to be collected retroactive to January 1991.

The Colorado Health Data Commission is currently using this data as part of a quality/outcomes data collection project, similar to the efforts in Pennsylvania (see below). They have

recently started collecting data. Like the Pennsylvania Health Care Cost Containment Council, the Colorado Health Data Commission is using MediQual's MedisGroups data set and will most likely be making some modifications.

The Commission will be publishing a study based on observed mortality and morbidity ratios by hospital for selected DRG groupings. The study will also contain an analysis of the relationship between payer type and patient outcome and between volume and outcome. This first report is expected to be available by the end of 1993 or the first calendar quarter of 1994.

Florida

The Florida Healthcare Purchasing Cooperative, a private, non-profit organization, was established in 1991 by legislative action to assist government employers with managing health care costs for their employees and clients. Their process for achieving this included improving access to data analysis, promoting more effective sharing of cost, utilization and benefit information, and developing opportunities to combine their purchasing power in local areas.²³

The 1992-1993 Legislative Appropriations Act charged the Cooperative with establishing a task force to help identify performance data that all health plans contracting with the state should submit. The Cooperative recently prepared a report, "Health Performance Indicators," which provides recommendations for state reporting practices of health plans and ways to improve data concerning state health plans offered to its employees and clients. Although the content of the report is primarily directed toward HMOs, the task force reviewed and evaluated a broad collection of data elements and their usefulness to the state for assessing and comparing plan performance.²⁴

Florida is looking to improve the internal quality and efficiency of Accountable Health Partnerships (AHPs), health care service providers certified by The Agency for Health Care Administration (AHCA). AHCA is responsible for the design of data elements and formats for reporting. Under recent proposed 1993 legislative action, AHP must "implement health care provider information systems for improving internal quality and efficiency...at a minimum a hospital data severity adjustment system based on claims information and clinical logic" for 1994.²⁵ Also, AHP's are required to implement a statistically valid tool to "measure health status such as the SF-36 questionnaire" by December 1994. AHCA proposes to adopt additional data requirements with a stipulation to review the necessity of supplying further clinical data and outcome measurements.²⁷

Healthcare Cost and Utilization Project (HCUP-3)

The Healthcare Cost and Utilization Project (HCUP-3) is an effort by the Center for Intramural Research of the Agency for Health Care Policy and Research (CIR/AHCPR) to develop of a national data base. The specific goal of HCUP-3 is to form a national public domain health data base for 1988 to 1994. The HCUP-3 data base will contain a national set of hospital and patient information which will be used for health care research and policy analysis. The HCUP-3 database also can provide a foundation for outcomes research at the national level.

Massachusetts is one of six states that has been asked to participate in this project. The Massachusetts Rate Setting Commission is the state agency that has been chosen to represent the Commonwealth in this effort. Other organizations that are participating in this project include Systemetrics, Abt Associates, and the National Association of Health Data Organizations (NAHDO), a membership organization that supports the development of public domain health data and promotes standardization of health data collection and dissemination.

HCFA's Health Care Quality Improvement Initiative

As part of its new focus on quality improvement for Medicare beneficiaries, HCFA has developed its Health Care Quality Improvement Initiative (HCQII). This initiative reflects HCFA's substantive change in philosophy. HCFA is moving away from its former focus on individual, and perhaps isolated, clinical errors and is focusing instead on improving the mainstream of care.²⁸ HCFA will focus on the more global picture in looking at patterns of care and patterns of outcomes. In accordance with this initiative, HCFA and the Peer Review Organizations (PROs) are moving away from the more traditional case review approach of the past to a more educational and collaborative one.

PROs are non-profit or for-profit "physician-sponsored or physician-access organizations" that contract with HCFA to conduct medical reviews of Medicare discharges.²⁹ The PROs, in collaboration with HCFA and clinical researchers, have developed a software system known as the Uniform Clinical Data Set (UCDS). This data system will allow for the collection and measurement of *uniform* inpatient data necessary for the evaluation of the quality and medical necessity of the care received by the Medicare population. Since January of 1991, the UCDS has been used as part of the on-going PRO review process in the following 7 pilot states: Alabama; Arizona; Colorado; Connecticut; Iowa; Utah; and Wisconsin.

The UCDS uses standard review criteria to which nurse reviewers or abstractors must adhere. These standard review criteria is the key to ensuring the reliability and uniformity of data across states. Based upon the data abstracted from the medical record, the UCDS will be used as a screening device "to decide" whether or not a case needs to be referred on to a physician reviewer for further evaluation. This new software allows for special studies using clinical data, not previously available under the old method of individual case review. According to HCFA, UCDS will become more useful as a "database for monitoring care and risk-adjusting outcomes."³⁰ HCFA eventually hopes to have a nationwide system of PROs using UCDS by 1995. PROs will be able to better assess quality by monitoring and evaluating utilization patterns and outcomes and by helping to identify the most effective treatment options for particular medical conditions.

As part of the HCQII, and as outlined under the PRO Fourth Scope of Work (HCFA's fourth and most recent set of contracts with the PROs), PROs will use data from the UCDS in both national and local collaborative projects. One of these national projects, known as the "Cooperative Cardiovascular Project," will analyze the following cardiac procedures: acute myocardial infarction, coronary artery bypass grafting, and coronary angioplasty.³¹ The goal of this project is to provide feedback to hospitals and medical staff regarding patterns of cardiovascular care and to work with the hospitals and providers to identify areas for improvement. HCFA has received assistance from the medical community regarding appropriate cardiovascular practice parameters. This cardiovascular project is scheduled to begin in the fall of 1993.



Endnotes for Appendix B

¹ Christine Woolsey. "Agency developing 16 clinical practice guidelines," *Business Insurance* (March 23, 1992): p. 27.

² Ibid.

³ Lucy Johns. "Measuring Quality in California," *Health Affairs* (Spring 1992): p. 266.

⁴ David Albertson. "MD Orders Scrutinized: A pen more mighty than swords," *Employee Benefit News*.

⁵ Carol Sardinha. "Cincinnati outcomes project gives firms clout with hospitals, insurers," *Managed Care Outlook*, Vol. 6, No. 7 (April 9, 1993).

⁶ JSI Research and Training Institute. Health Care Data Project, JSI, Boston, MA: 1993.

⁷ Ibid.

⁸ Joint Commission on Accreditation of Healthcare Organizations. "Agenda for Change: Standards Development" (December 1992).

⁹ Joint Commission on Accreditation of Healthcare Organizations. "Information About the Indicator Monitoring System" (May 18, 1993): p. 1.

¹⁰ Frank Sabatino. "Why Maryland's clinical indicator project is building steam," *Trustee* (June 1992): p. 16.

¹¹ Ibid.

¹² Ibid.

¹³ Nancy Madlin. "Coalitions Strive for Quality," *Business and Health*, mid-September 1991, p. 28.

¹⁴ National Committee for Quality Assurance. *Health Plan Employer Data and Information and Users Manual, Version 2.0* (May 5, 1993): p. viii.

¹⁵ *Ibid.*, p. 15.

¹⁶ Donald M. Berwick, A. Blanton Godfrey, and Jane Roessner. *Curing Health Care* (San Francisco, California: Jossey-Bass Publishers, 1990): pp. 23-26.

¹⁷ Ibid.

¹⁸ New York State Department of Health. Cardiac Artery Bypass Graft Surgery in New York State. Albany, NY: December 1992.

¹⁹ JSI Research and Training Institute. Health Care Data Project, JSI, Boston, MA: 1993.

²⁰ Ibid.

²¹ David Burda. "Pa. quality data reveal outcomes, price variations," *Modern Healthcare* (July 7, 1989).

²² Pennsylvania Health Care Cost Containment Council. *Coronary Artery Bypass Graft Surgery: Formal Comments* (Harrisburg, PA: Pennsylvania Health Care Cost Containment Council, November 1992).

²³ Florida Healthcare Purchasing Cooperative. Health Plan Performance Indicators, Florida Healthcare Purchasing Cooperative, (Tallahassee, FL: June 30, 1993).



²⁴ Ibid.

²⁵ Proposed Rule 59D-2, Florida Statutes, p. 19.

²⁶ Ibid., p. 20.

²⁷ Ibid., p. 20.

²⁸ Stephen F. Jencks, M.D., and Gail R. Wilensky, PhD. "The Health Care Quality Improvement Initiative: A New Approach to Quality Assurance in Medicare," *JAMA*, Vol. 268, No. 7 (August 19, 1992): p. 900.

²⁹ *Federal Register*, Vol. 58, No. 39 (March 2, 1993): p. 12042.

³⁰ Stephen F. Jencks, M.D., and Gail R. Wilensky, PhD. "The Health Care Quality Improvement Initiative: A New Approach to Quality Assurance in Medicare," *JAMA*, Vol. 268, No. 7 (August 19, 1992): p. 901.

³¹ Ibid., pp. 901-902.



Appendix C

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Colophon: Production Notes

H HEALTH CARE QUALITY and the Importance of Outcomes Measurement was researched and produced by the staff of the Massachusetts Rate Setting Commission. The Commission solely is responsible for its content and distribution.

Publication design, page layout and document production were accomplished

in-house using cost-effective electronic desktop publishing software and related microcomputer and photocopier equipment.

The report was reproduced and prepared for distribution at the offices of the Commission.

**Massachusetts Rate Setting Commission
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Boston, Massachusetts 02116
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Publication of this document approved by Philmore Anderson, State Purchasing Agent
Publication Number 17451-37-200-12/93-RSC

